

# The Status of Private Sector Participation in Solid Waste Management Services in Egypt

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## List of Acronyms and Abbreviations

<b>CBA</b>	Cleansing and beautification authority
<b>CCBA</b>	Cairo Cleansing and Beautification Authority
<b>CDA</b>	Community Development Association
<b>EEAA</b>	Egyptian Environmental Affairs Agency
<b>GCBA</b>	Giza Cleansing and Beautification Authority
<b>GOE</b>	Government of Egypt
<b>ISWM</b>	Integrated solid waste management
<b>MOEA</b>	Ministry of State for Environment Affairs
<b>MSW</b>	Municipal solid waste
<b>SWM</b>	Solid waste management
<b>USAID</b>	United States Agency for International Development

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## **1. Introduction**

In May 1999, the Government of the Arab Republic of Egypt (GOE) and the United States Agency for International Development (USAID) signed an agreement to implement the Egyptian Environmental Policy Program (EEPP). Under this agreement, the GOE seeks to implement its priority environmental policy objectives, drawing upon technical support and other assistance provided by USAID. EEPP is a multi-year activity to support policy, institutional, and regulatory reforms in the environmental sector, focusing on economic and institutional constraints, cleaner and more efficient energy use, reduced air pollution, improved waste management, sustainable tourism best practices, and nature conservation.

The principal EEPP partners are the Egyptian Environmental Affairs Agency (EEAA), Tourism Development Authority (TDA), and Organization for Energy Planning (OEP).

### **1.1 Role of MVE**

Within the EEPP there is the Monitoring, Verification, and Evaluation Unit (MVE), and independent and autonomous unit. One of the roles of MVE within EEPP is to monitor indicators tracking broad environmental and related conditions in Egypt, including those covering economic, social, and health issues. More specifically, to help USAID in assessing the effects of its activities in the area of the environment, MVE manages the data, information, and indicators of the USAID/Egypt Performance Monitoring Plan (PMP) for the Environment Division. MVE also evaluates the impact of EEPP policy reforms and carries out analytical work setting baselines and examining cross-cutting issues, and identifying barriers and constraints to policy reform implementation, as well as solutions to overcoming these.

Within this PMP, the evolution of the privatization of Solid Waste Management (SWM) services in Egypt is monitored by the determination each year of the number of governorates having at least one new private sector SWM contractor. To do this, a baseline must be set and where such information is not already available in this or any other area, MVE undertakes the investigations necessary.

This study was carried out for MVE by two Egyptian consulting firms. One, Chemonics Egypt, carried out the overall survey of all 26 governorates and their situations. The other, EcoConServ, provided the overall description of the SWM sector and the more detailed examination of the situations in several selected governorates. Certain details in the information may differ between the analyses as a result of the different methods of collection and timing.

### **1.2 Objective of this Report**

The objective of this report is to briefly describe the status and progress of private sector participation in Solid Waste Management (SWM) in the governorates of Egypt. This will then serve as the baseline for an indicator of privatization in the Performance Monitoring Plan (PMP).

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### **1.3 Contents of this report**

All or virtually all governorates and their municipalities already have some private sector participation in SWM (as seen in Chapter 3) though this participation is not generally at a high level in terms of the range of services provided, the percent of population served (as seen in Chapter 2), or the quality of the service.

Looking to forge a long-term solution to the solid waste problem, the Government of Egypt decided to privatize the Integrated Solid Waste Management Services in eleven priority governorates through contracting private sector companies including international operators. The remaining governorates are not a priority because they are rural governorates or otherwise different and needing a different approach.

This study provides an overview of the status in all governorates and then looks in more detail at a selection of the priority governorates.

### **1.4 Methodology of this report**

To depict the ongoing MSW management practices and assessing the current situation of the privatization process in the selected governorates, the analysts:

- i. Collected and reviewed available information on current SWM practices in Egypt including previous studies and surveys for selected governorates.
- ii. Reviewed tender documents for some selected governorates.
- iii. Reviewed available studies and surveys on the privatization process of SWM services in some countries of the region (North Africa and the Middle East).
- iv. Conducted structured interviews with selected governorates representatives to assess terms of the service contracts with private sector operators, with particular emphasis on duration, date of contract issuance, and their perspective on these contracts.
- v. Conducted structured interviews with EEAA representatives involved in tender document preparation
- vi. Met, as needed, with current private sector operators to investigate their perspective in regard to the privatization process.

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## **2. Brief Description of the Current SWM Situation in Egypt**

### **2.1 Current SWM Practices**

The mis-management of Solid Waste Management (SWM) is a serious and visible problem negatively affecting the public health in, and the natural resources of Egypt. For many years waste management has been undertaken in the context of inadequate policy and legislative direction and with insufficient financing and fiscal accountability.

Solid waste is managed under the “cleansing” approach, that looks only remove the waste, without due regard to environmental and socioeconomic consequences of the SWM.

Attitudes to waste management are changing rapidly in the country and the GOE has made solid waste management a priority. The Ministry of State for Environment Affairs (MOSEA), in coordination with other relevant ministries and governorates, has prepared a national waste management program that envisions implementing an integrated solid waste management system across the country, together with the remediation of existing dumpsites, particularly those that threaten human health or which are on the banks of the Nile.

The actual management of solid waste is the responsibility of governorates or of the municipalities within these and not of the national government. Overall policy or strategy for SWM is set by the national government.

A waste management group has been established within the Egyptian Environmental Affairs Agency (EEAA), and a new focus has been given for development of an overall SWM policy framework to guide investments in the sector. However, neither EEAA nor other administrative authorities have not yet established a significant monitoring, regulatory or enforcement presence in the sector. Many initiatives are being undertaken with donor help to improve SWM in the country, but these are not well coordinated. In fact, in the first tranche of EEPP assistance was given to the – successful -- effort to create a new National Solid Waste Management Strategy through a process that included participation from many sectors and levels of government and society.

#### ***Solid Waste Generation Rate***

Nationwide, the quantity of solid waste generated has been estimated to be around 60 million tons per year<sup>1</sup>. Municipal Solid Waste (MSW) generated from urban and rural areas amounts to 15 million tons per year<sup>2</sup>, while the remaining 45 million includes agriculture waste, construction and demolition waste, industrial waste, sludge from treatment of sanitary wastewater, canal cleansing, and health care waste.

#### ***Source, generation rate, and composition***

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<sup>1</sup> Source: National Solid Waste Management Program, December 2000

<sup>2</sup> Source: National Solid Waste Management Program, December 2000

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MSW is generated by households, commercial establishments (markets and commercial shops), service institutions (schools, educational institutions, and administrative establishments), streets and gardens, and hotels and entertainment facilities. It could also include waste generated from small industries located within the residential areas, as well as construction and demolition waste from minor activities.

The quantity and the composition of MSW generated differ significantly from one district or area to another depending on their inhabitants, their main activities, and their income level. In lower-income areas, the per capita solid waste generation rate decreases but organic content increases. In general, the daily per capita generation rate ranges from 0.3 to more than 1 kg, with an average density of about 300 kg/m<sup>3</sup>.

### ***Collection and transportation***

The above estimates are for waste generated. The problem, however is that not all that is generated is removed.

**Table 1: Municipal Solid Waste Collection Efficiency and Accumulated Solid Waste in Selected Governorates<sup>3</sup>**

<b>Governorate</b>	<b>Collection Efficiency (%)</b>	<b>Solid Waste (m<sup>3</sup>)</b>
Cairo	62.5	2,236,500
Giza	64	447,050
Alexandria	77	344,830
Aswan	41	386,351
Suez	not available	1,219,550

Table 1 illustrates that the SW collection and transportation efficiency of the selected governorates ranges between 41-77%, with the balance to accumulate.

The current collection practices include:

*a. Households and commercial waste*

- Door-to-door collection through either Zabbaleen or private sector companies, utilizing 2m<sup>3</sup> capacity vehicles for transportation.
- Collection in public bins and containers (2-3 m<sup>3</sup> capacity each) that may be unloaded using compactors.
- Collection in trailers (3-6 m<sup>3</sup> capacity each) prior to transport by tractors to final disposal site.
- Collection from collection/transfer points that are randomly distributed in the streets using trailers.

*b. Street Waste*

Normally, street waste is collected manually in small (0.4 - 0.5 m<sup>3</sup>) hand-driven carts that are unloaded either into public containers or into specified street cleansing vehicles. In a few cases particularly in large cities, mechanized street cleansing equipment is used.

*c. Waste from Institutions*

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<sup>3</sup> Source: National Ministerial Committee on Solid Waste, November 1999

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The municipality or governorate cleansing and beautification authorities are mainly responsible for the collection and disposal of solid waste generated from schools, hospitals, and industrial establishments. These authorities are generally not capable of providing all solid waste services for all their industrial establishments. Accordingly, large industrial establishments periodically dispose of their solid waste either through contracting private collection companies or by using their own trucks to dispose of it at the nearest dumpsite.

### ***Recycling and Reuse***

Traditional solid waste collectors or “Zabbaleen” introduced the practice of solid waste recovery and re-use in Egypt. This is based on the single most important motive for such behavior: economic motivation. They sort non-organic waste into different categories of materials, primarily plastics, paper, glass, metal, fabric, bones, and non-recyclables. Sorting is done according to color, size, shape, and potential use or re-use of the materials. As the efficiency of sorting increases, the amount of waste that ends up in dumps decreases. The Zabbaleen are now collecting around 30% of the total solid waste generated in Cairo<sup>4</sup>.

### ***Treatment***

Several projects have been undertaken over the past years to recover value from solid waste. These mainly depend on treating collected solid waste either by composting or incineration.

#### ***a. Composting***

Government-led treatment efforts in this regard have focused on compost production. The high organic content of the waste stream has stimulated centralized composting initiatives in Cairo, Alexandria, Giza, Damietta, and Zagazig. Today, there are about 55 composting plants (total design capacities of 8,840 tons per day)<sup>5</sup> with future plans to reach nearly 100 composting plants in the next three years.

These facilities have demonstrated that while centralized composting can be undertaken, they have often not been sustainable because of one or more factors such as poor technology selection, inadequate capability to manage, operate, or maintain equipment, inadequate cost recovery, or poor integration into waste management initiatives (e.g. the need to remove contaminants prior to composting or to identify cost-effective compost markets).

#### ***b. Incineration***

Small solid waste incinerators have been erected in eight cities but the high moisture content and low energy content of the waste stream have made it uneconomical to operate them. Furthermore, research has demonstrated that treatment using large capacity incinerators is not economically or technologically feasible for the same reasons.

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<sup>4</sup> Source: National Solid Waste Management Program, December 2000

<sup>5</sup> Source: National Solid Waste Management Program, December 2000

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### *Final disposal*

Waste disposal in uncontrolled traditional open dump areas remains the prevailing practice in Egypt. There is no sanitary landfill site anywhere in Egypt, although the German Technical Cooperation (GTZ) has funded a pilot landfill that started operation in 2000 in the Aswan Governorate. Some attempts have also been made to design, build, and operate what have been called controlled dumpsites in major cities such as Cairo and Giza.

## **2.2 Regulatory/Legal Framework**

The primary environmental legislation in Egypt is Law 4 of 1994—the Law for the Environment. This law does not specifically address solid waste; provisions that could be applied to SWM require clarification in an Executive Regulation. However, it does prohibit (Article 37) the burning, disposal, or treatment of solid waste except in designated areas distant from housing or industrial or agricultural areas as well as from waterways. The executive regulations for this law define the specifications, conditions, and constraints related to these designated areas. Local units of the Ministry of Housing (Housing Directorates) in agreement with EEAA, assign the sites for dumping, treating, or burning solid wastes.

Certain articles of the Prime Minister’s Decree No. 338 for 1995 promulgating the Executive Regulations are also relevant, particularly Article 39, which states that collectors of garbage and solid waste must keep their garbage bins and vehicles clean. Garbage bins must be covered tightly to prevent emission of offensive odors, and to deter flies and other insects and stray animals. The garbage must be collected at suitable intervals according to the conditions of each area. The quantity of garbage is not to exceed the capacity of any of the bins at any time.

Another environmental law, Law 48 for 1982, for the Protection of the River Nile and Waterways against Pollution also applies. It states (Article 2) that:

No solid, liquid or gaseous waste products from buildings, shops, commercial, industrial, or touristic establishments and sanitary drainage systems and others shall be drained, cast, or thrown in waterways all through their lengths or areas without permission of the Ministry of Irrigation, in cases and according to rules and measures to be determined by order of the Minister of Irrigation upon a suggestion from the Minister of Health. The relative permission shall specify the measures and specifications of each case separately.

The main legislation relating directly to SWM is Law No. 38 for 1967 as amended by Law No. 31 for 1976. This law regulates the collection and disposal of solid waste from residential areas, commercial and industrial establishments, and public places. It imposes a cleanliness tax on all housing units equivalent to 2% of the rental value. Article 6 of Law 38 for 1967 requires the local council to issue a license for all workers employed as waste collectors. Law 31 for 1976 defines “garbage and solid wastes” as including domestic and industrial waste. It also set specifications for garbage containers, means of transportation, and the frequency of solid waste collection.

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Ministry of Housing Decree 134 for 1968 implemented the Law 38 for 1967 . It sets specifications and locations for dumping places and methods of treatment (e.g., dumping, composting, and incineration).

Law No. 137 for 1981, which deals with occupational safety, has some relevance here because it requires, in Article 177, that an employer inform workers of the hazards associated with his or her non-compliance with safety measures and provide the workers with personal safety equipment and training in its use.

Presidential Decree No. 284 for 1983 established the Cairo and Giza CBAs and mandated that they collect garbage and solid wastes and dispose of them in special areas.

In addition to these national laws, some cities have their own ordinances; if a specific rule is broken an inspector will issue a notice, which would usually be followed by a fine.

## **2.3 Institutional Framework**

Local administration/authorities, traditional private household waste collectors or “Zabbaleen” and private companies newly entered in the trade are the three main stakeholders responsible for the management of solid waste generated in all governorates.

### **2.3.1 Local Administration/Authorities**

The governmental level responsible for SWM is either the local municipalities or, in the case of large cities such as Cairo and Giza, the Cleansing and Beautification Authorities (CBA). They are also responsible for issuing licenses for private waste collectors.

Collection: local municipalities or CBA are “usually” responsible for the collection of street waste, waste from vacant lots, gardens waste, market waste, waste generated from canal cleansing activities, etc.

Treatment: local municipalities or CBA are responsible for operating existing composting plant(s) either directly or through contracting a private sector company.

Final disposal: local municipalities or CBA are responsible for supervising the landfill and dumpsite operation either directly or through a private sector company.

### **2.3.2 Zabbaleen**

Over the past 25 years the Zabbaleen have created small-scale enterprises involved in the collection and recovery of materials of value primarily from domestic waste. By far the most successful efforts to recover value from wastes have been the initiatives of the Zabbaleen primarily in Cairo.

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Members of the Zabbaleen community offer a door-to-door service daily or once every two days in return for monthly fees contract with individual households to collect all their wastes for a fee that ranges between LE 1-5 per month. The Zabbaleen sorts the waste, and recyclable materials are sold to local entrepreneurs; large amounts of organic materials are also extracted and used as pig feed. Because they are interested in obtaining wastes that are rich in recyclables, they tend to serve neighborhoods that have above average income levels. The Zabbaleen are active in Cairo and, to a much lesser degree, in Alexandria. Researchers report that in excess of 80 percent of waste managed by the Zabbaleen is typically reutilized<sup>6</sup>. Furthermore, government agencies are now contracting the Zabbaleen to collect wastes from previously non-served areas.

Collectors from each area have a collection license from the local municipalities or CBA for an assigned area, collectors cannot work outside their assigned areas, however, a collector may have more than one license.

### 2.3.3 Private Operators

Individual collectors who expanded their investment established many of these companies; such companies' work is similar to the Zabbaleen with the only difference in the legal status of the establishment.

In the last few years, some well-organized private companies such as Care Service, Misr Service, Europe 2000, and others, newly entered into the solid waste service, particularly in large cities.

Some Non Governmental Organizations (NGOs) have also performed some work in the field of solid waste services.

As previously mentioned for the Zabbaleen, each private operator should also have a collection license or a service contract from CBA for his assigned area.

## 2.4 Problems of SWM in Egypt

The problems of solid waste collection in Egypt could mainly be attributed to the insufficiency of suitable equipment, labor force, financial resources, and public awareness.

### 2.4.1 Equipment

The numbers and type of collection vehicles/equipment used does not meet the requirements to collect the quantity of solid waste generated. Furthermore, the majorities of the trucks are not capable of automated tipping of street containers, but rather rely on manual laborers to load the contents of the garbage containers onto the truck using shovels.

Contributing to the problem is the wide spread of containers in the streets of different districts. These containers are placed to allow residents to dispose of their garbage and are then emptied by means of the fleet of the Cleansing and Beautification Authorities

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<sup>6</sup> Source: the informal solid waste sector in Egypt: prospects for formalization, CID, January 2001

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(CBA). It is reported that scavengers who attempt to find suitable recyclables for sale very frequently scavenge these containers. The garbage is completely emptied into the streets as a result of the scavenging, which later requires massive manual collection, by governorate cleansing workers.

#### 2.4.2 Labor Force

The shortage in solid waste collection workers is also considered a major problem. The local community (particularly youth) is reluctant to work in this field since it is viewed as an embarrassing job. As a result, governorates resolve to “import” worker from the bordering governorates. Workers immigrating from neighboring governorates are reported to have a high turnover and do not stay long. Although the contractors are contractually required to maintain a fixed number of workers, in most cases they are unable to fulfill this requirement and the solid waste management operation becomes understaffed.

A consequence of the understaffing coupled with the unwillingness of households to pay, is that door-to-door collection services are only offered to a small percentage of the population.

#### *Financial Resources*

Operationally, solid waste management is the responsibility of the governorates and municipalities. Financing for waste management operations at the local level is supported by a “cleansing” charge of 2% of household rent to which are added violation fees and government budgetary allocations.

In addition, it is reported that the financial resources that are available are used primarily for street cleansing and for subsidizing the salaries/wages of municipal workers. As a consequence, municipal waste collection services are poorly financed, and in many areas solid waste collection is almost non-existent.

#### 2.4.4 Public Awareness

Finally, the absence of public awareness on suitable practices in handling solid waste contributes considerably to the problem. The majority of the public do not dispose of their garbage in the designated containers, but rather dispose of it wherever is convenient for them. Littering is another behavioral problem, exacerbated by lack of monitoring and enforcement of fines and penalties.

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### 3. Privatization of Solid Waste Management Services

#### General Description of the SWM Privatization Process

The real involvement of the private sector in solid waste management activities in Egypt has so far been minimal. A limited number of private sector companies own service contracts in a number of governorates for collection, transportation, and cleansing activities. However, such contracts are limited both geographically and in duration.

With a view to a long-term solution to the solid waste problem, the Government of Egypt decided in 1999 to privatize the Integrated Solid Waste Management Services in eleven priority governorates including through contracting international operators<sup>7</sup>. The Government perceives the remaining governorates as second priority governorates<sup>8</sup>, and rural governorates needing a different approach. Within priority governorates, the process of privatization itself is at a stage between issuing requests for pre-qualification and actually contracting an operator.

The following table summarizes the different stages of the privatization process in the different governorates.

**Table 2: Stages of Privatization in Selected Governorates**

<b>Privatization Stage</b>	<b>Governorate (City)</b>
<i>1. Contract Awarded</i>	<ul style="list-style-type: none"><li>• Alexandria</li><li>• Suez</li></ul>
<i>2. Evaluation of Technical and Financial Proposals</i>	<ul style="list-style-type: none"><li>• Giza (3 Zones)</li><li>• Aswan</li><li>• South Sinai</li><li>• Hurghada</li><li>• Luxor</li><li>• Menofeya</li></ul>
<i>3. Issued Tender Documents</i>	<ul style="list-style-type: none"><li>• Cairo (North, East, West)</li><li>• El-Behira</li><li>• Port Said</li><li>• Dakahleya</li></ul>
<i>4. Pre-qualification of Private Operators</i>	<ul style="list-style-type: none"><li>• Qualoubiya</li><li>• Gharbaya</li><li>• Cairo (South)</li><li>• Fayoum</li></ul>
<i>5. Tender Document Preparation</i>	<ul style="list-style-type: none"><li>• Sharkeya</li><li>• Wadi El-Gadid</li><li>• Mersa-Matrouh</li></ul>

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<sup>7</sup> The first priority (11) governorates and cities include: Cairo, Alexandria, Giza, Qualoubiya, Gharbaya, Menofeya, Aswan, South Sinai, Hurghada, Fayoum, and Luxor.

<sup>8</sup> The second priority (8) governorates include: North Sinai, Suez, Dakahleya, Port Said, Sharkeya, El-Behira, Wadi El-Gadid, and Mersa-Matrouh. The privatization process for these governorates was initiated in July 2000.

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### 3.1 SWM Privatization in the Performance Monitoring Plan

Because SWM is such an important part of Egyptian environmental management, among its other assistance, USAID has activities to help with SWM policy and with the privatization of services in an open, fair, and cost effective manner. Within the framework of the USAID Performance Monitoring Plan (PMP), used to routinely track and report on environmental information and to gauge the results of these efforts, the evolution of the privatization of SWM services in Egypt is monitored by the determination each year of the number of governorates having at least one new private sector SWM contractor.

The baseline year used for monitoring the evolution is 1999. Clearly, to determine the new number the baseline number must be known. Thus the need was identified to determine the number of private sector SWM contracts in each governorate in 1999 and subsequent years. This need was met by carrying out a simple survey directed to the concerned departments within each of the governorates<sup>9</sup>, with subsequent visits to a large number of these governorates. The survey utilized an information collection form to be filled for the years of 1999 and 2000, addressing the number of private sector contracts, for individual contractors (e.g., Zabaleen) and companies, for SW collection, recycling, composting, and final disposal. A copy of this form in Arabic and English is included in Annex X.

The details of the information submitted by the governorates varied greatly. For example, a number of governorates provided the numbers of contracts segregated by type (individual or company) together with the names of companies involved, while others only provided the collective number of contracts and/or contractors. This is, most probably, a reflection of the diversity of record keeping for such information, as well as the different policies adopted for its release by the different governorates. Although the collected information is by no means uniform in the level of detail, it provides a useful insight into the evolution of the number of private sector contracts in SWM. It is therefore summarized in the following section, with the discrepancy of the level of detail between the different governorates. If such information is to be used for regular monitoring, then a mechanism for its yearly collection, specifying the level of detail to be provided, and a unified record keeping system needs to be developed. MVE will be working on this before the end of 2001 and the next updating and reporting cycle.

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<sup>9</sup> The city of Luxor, having a special administrative status, has been individually targeted, and not included in the data of the Qena Governorate.

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### 3.2 Status of Private Sector Participation in SWM Services for the Years 1999 and 2000

	Governorate	1999 contracts	2000 contracts	Comments
1.	Alexandria	2 collection contracts <sup>10</sup> ( <i>Care Service</i> , <i>Wataneya</i> )	1 integrated contract ( <i>Onyx</i> )	Prior to the conclusion of the contract with <i>Onyx</i> , there were about 150 – 200 Zabaleen families carrying out informal waste collection in the Governorate.
2.	Assiut	1 contract for composting	Similar to 1999	
3.	Aswan	1 collection contract ( <i>Care Service</i> )	Similar to 1999	
4.	Beheira	None	1 contract for recycling	
5.	Beni Suef	None	1 composting contract ( <i>Dar El Biaa</i> )	The operationalization of the contract is facing problems
6.	Cairo South Zone	Info not available	4 collection contracts held by two companies ( <i>Europe 2000</i> , <i>Care Service</i> )	The Cairo Cleaning and Beautification Authority, the concerned municipal authority, limited the bids to the contracts to registered companies. However, it also issues “licenses” <sup>11</sup> to private operators. There exist 34 such operators in the South Cairo Zone.

<sup>10</sup> A “contract” usually denotes an agreement between the concerned municipal authority and a registered company (contractor), for carrying out a SW service (usually collection and to a limited extent composting), against a fee usually paid by the municipal authority to the contractor (though for some composting contracts, the contractor pays a concession fee to the municipal authority).

	Overall	An overall of 375 agreements (licenses and contracts) held by 297 contractors, for collection.	Similar to 1999	
7.	Dakhaleya	1 contract for composting ( <i>Dar El Biaa</i> )	Similar to 1999	<ul style="list-style-type: none"> <li>• 12 concession “licenses” for collection held by associations and individuals in 1999</li> <li>• 28 concession “licenses” for collection held by associations and individuals in 2000</li> <li>• Governorate called for tenders for integrated SWM for the cities of Mansurah and Takhla, and six companies have been short-listed. The finalization of the tender evaluation and contract conclusion is expected to take place during 2001, and the expected date of start of the new private integrated services is 31<sup>st</sup> December 2001.</li> </ul>
8.	Damietta	1 contract for collection ( <i>Care Service</i> ) 1 contract for composting	1 contract for composting 1 contract for recycling	

<sup>11</sup> The terms “license” and “permit” are used interchangeably by different governorates. They usually denote an agreement between the concerned municipal authority and an individual and/or company (contractor) for carrying out a SW service (most commonly collection) against a fee paid by the contractor to the municipal authority. The contractor is then allowed to collect a fee from the households/establishments benefiting from the service. For the work presented here, only the term “license” is used to denote this type of agreement. Generally, these licenses have not been included in the count of private sector agreements, but are referred to in the table column titles “Comments”.



		1 contract for recycling		
9.	Fayoum	None	Similar to 1999	
10.	Gharbeya	None	Similar to 1999	Governorate is in the process of preparing for tendering for SWM services applicable in all cities of the Governorate
11.	Giza	57 collection contracts with 20 companies	Info not available	274 concession “licenses” for collection are held by 195 Zabaleen contractors
12.	Ismailia	None	Similar to 1999	
13.	Kafr El Sheikh	None	Similar to 1999	<ul style="list-style-type: none"> <li>Two concession “licenses” for collection are held by 2 Zabaleen individuals in the city of Kafr El Sheikh.</li> <li>Call for tendering for SWM services to take place during 2001, for the 10 cities of the Governorate.</li> </ul>
14.	Luxor City	None	Similar to 1999	
15.	Matrouh	None	Similar to 1999	
16.	Menoufeya	None	Similar to 1999	Currently calls for tendering for the involvement of private national and international companies are underway
17.	Miniah	1 contract for composting	Similar to 1999	

18.	New Valley (El Wadi El Guedid)	None	Similar to 1999	
19.	North Sinai	1 collection contract ( <i>Heliocare Service</i> )	Similar to 1999	
20.	Qena	None	Similar to 1999	
21.	Qualyubeya	None	Similar to 1999	
22.	Port Said	None	Similar to 1999	2 concession “licenses” for collection are held by 2 Zabaleen.
23.	Red Sea	2 collection contracts ( <i>Care Service, Queen Service</i> )	Similar to 1999	
24.	Sharkeya	None	Similar to 1999	The Governorate is currently preparing the tender documents for the involvement of the private sector starting 2002. Currently, 6 private companies are preparing for this.
25.	Sohag	None	Similar to 1999	
26.	South Sinai	2 contracts for collection, recycling and final disposal ( <i>Ameer Contractors, Association for the Protection of the Environment</i> )	Similar to 1999	

		<p>2 contracts for collection and final disposal (<i>Care Service, Neema Bay Contractors</i>)</p> <p>1 contract for recycling and final disposal (<i>Emad Mahmoud Abdel Fattah Company</i>)</p> <p>1 contract for recycling and composting (<i>the Egyptian-German Company</i>)</p>		
27.	Suez	2 collection contracts ( <i>Care Service, Nibitco</i> )	None	The Governorate has issued bidding documents for an integrated SW management system, and is currently evaluating the submitted proposals. One condition of the integrated contract is the absence of any other contracts for SW services within the Governorate, and hence the non-renewal of the 2 collection contracts.

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## **4. Detailed descriptions of Private Solid Waste Operations in Selected Governorates**

### **4.1 Criteria for Selection of Governorates**

The priority governorates are at different stages in the process of privatization, with some only now issuing requests for pre-qualification and others actually contracting with an operator. This detailed description focuses on governorates, among the priority governorates, that would represent:

- The different stages of the privatization process (pre-qualification, qualification, tendering, etc.);
- Different types of governorate (urban and rural);
- Varied geographical location (upper and lower governorates); and
- A variety of economic activities within governorate (tourism, industry, etc.).

Furthermore, the availability of information on the privatization process also guided the selection of these representative governorates.

For the purpose of this study and based on the previously mentioned selection criteria, discussion focuses on the following governorates or areas:

- *Alexandria Governorate*
- *Giza City*
- *Aswan Governorate*
- *Suez Governorate*
- *South Cairo Zone*
- *Dakahleya Governorate*

For the scope of this study discussions of private sector solid waste service providers would exclude operators dealing with hazardous waste and health care waste.

A number of private sector operators provide the services of SWM in these selected governorates either through service contracts or through licenses issued from the competent local governmental authorities. In the following sections and based on the availability of information, both categories of private sector operators (Zabbaleen and private companies) are presented.

#### **4.1.1 Alexandria Governorate**

In the privatization process in Egypt, Alexandria Governorate took the lead in contracting the first international private sector operator to implement an integrated solid waste management service in the governorate.

The Alexandria Governorate is the northwest part of the Nile Delta. It shares the eastern and the southern borders with El-Behira Governorate, on its western border is Mersa-Matrouh Governorate. Alexandria is extensively industrialized containing about 40% of Egypt's industrial base.

#### ***Number of Contracted Operators***

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The following information represents the status in Alexandria Governorate before the signature of the contractual agreement with the selected international operator for the ISWM service. At that time, seven Non-Governmental Organizations (NGOs) were reported to be operating in waste collection within the governorate.

One project that has been funded (LE 10 million) by the Social Fund for Development (SFD) provided trucks (on a soft loan basis) to young graduates for collection of solid waste in El Gomrok district. When it began operation in November 1997, its objective was to serve the entire district. In 1998, weigh scale data for the SFD-funded project showed that it was collecting only 17.9 percent of the waste collected in El Gomrok district, so it was at that time far from meeting its original objectives.

Two private sector companies provide solid waste services. These two companies are Care Service (which provides sweeping service along the Corniche and adjacent parks) and Watanaya for Waste Collection. According to a recent estimate, some 150 to 200 Zabbaleen families are also dealing with solid waste in Alexandria. However, there was no accurate information on the percentage coverage by the Zabbaleen available as the this report was prepared.

### ***Type of Services Provided***

The responsibilities of these NGOs include cleaning as well as collecting, transporting, and dumping of household waste. Small quantities from that collected are recycled by these organizations. The private companies are mainly responsible for street sweeping.

### ***Service Coverage Percentage***

These seven NGOs are handling (collecting, transporting, disposing) 25 percent of the total amount of municipal solid waste generated in the governorate.

#### **4.1.2 Giza City**

Giza City issued three SWM privatization tender documents in the summer of 2000. Technical and financial proposals submitted by the international bidders are undergoing evaluation (*evaluation for one tender has been completed*).

Giza City is the capital of Giza Governorate and represents the urban part of the governorate. Giza City is divided into seven urban districts: Boulaq El-Dakrou, El-Doki, El-Agouza, North (Imbaba), El-Omranaya, South and El-Haram.



**Figure 1: Giza City Districts Map**

The total area of Giza City is about 77.52 km<sup>2</sup> (0.59% of the total governorate area). The inhabited area in Giza City is about 98.18 % of the total.

### ***Number of Contracted Operators***

#### **a) Private Sector Companies**

There are 22 private sector companies collecting Giza City's household waste , ; altogether they hold 58 licenses<sup>12</sup>. Individual collectors who expanded their investment established many of these companies. These companies work similarly to the Zabbaleen with the only difference in the legal status. Collectors are granted a collection license from Giza Cleansing and Beautification Authority (GCBA) for their assigned areas. However, a collector may have more than one license and can work only in these assigned areas.

Some establishments such as hotels and restaurants, require a stand-alone collection license.

#### **b) Zabbaleen**

<sup>12</sup> Data collected from Giza Cleansing and Beautification Authority, 2000

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Most of the household waste generated from Giza City is collected through traditional waste collectors the “Zabbaleen”. Recent figures show that 165 individual collectors hold 294 licenses from the GCBA<sup>13</sup>.

### ***Type of Services Provided***

Companies and individuals in the private sector handle the municipal solid waste generated from residential units, educational institutes, hotels, etc. They offer a door-to-door service daily or once every other day in return for a monthly fee.

Private sector collection practices vary considerably. Normally the private collection team consists of collector, transporter, and receiver. Usually, the three roles are undertaken by a single entity, whether individual or company. However, in some cases an individual undertakes collection and transportation and gives the waste to another receiving individual.

### ***Service Coverage Percentage***

Table 3 presents the number of collection areas covered by private sector operators (companies and Zabbaleen) in Giza City.

**Table 3: Number of collection areas covered by private sector operators per district in Giza City**

<b>District</b>	<b>Number of collection areas</b>
Agouza	42
Dokki	49
North Giza	57
Boulaq El-Dakrou	57
El Haram	41
El Omranaya	58
South Giza	40
<b>TOTAL</b>	<b>344</b>

It was reported that Zabbaleen and private sector companies collect around 80% of the total collected household waste in Giza City<sup>14</sup>.

#### **4.1.3 Aswan Governorate**

Aswan Governorate issued tender documents for SWM privatization in the summer of 2000. Only two companies submitted technical and financial proposals, and these are currently being evaluated.

Aswan Governorate is situated at the most southern – or Upper -- part of Egypt. It is famous for its touristic and archeological sites.

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<sup>13</sup> Data collected from Giza Cleansing and Beautification Authority, 2000

<sup>14</sup> Data collected from Giza Cleansing and Beautification Authority, 2000.

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The governorate borders the Red Sea Governorate (to the East), the New Valley Governorate (to the West), and Qena Governorate (to the North). Administratively, Aswan governorate comprises 5 directorates/Markaz: Aswan, Daraw, Kom Ombo, Nasr El Nuba, and Edfu, each of which consists of one to three cities and a number of mother villages. Affiliated to the mother villages are small satellite villages.

### ***Number of Contracted Operators***

Table 4 lists the name of private sector companies operational in the directorates.

**Table 4: Private Companies in Aswan Governorate per Directorate**

<b>Directorate</b>	<b>Private Company</b>
Aswan	Care Service
Daraw	None
Nasr El Nuba	None
Kom Ombo	Care Service
Edfu	Care Service

In Aswan City, one NGO currently provides household waste collection service. It was reported that another NGO has tried to collect solid waste from households, streets and markets in Daraw and Kom Ombo directorates. However, it was unable to continue its service due to problems in fee collection from the residents. The NGO incurred financial losses and consequently stop offering its services.

No Zabbaleen operate in the Aswan governorate under contract with local authority but many scavengers sort the collected garbage for valuables and recyclable items.

Large facilities such as the Electrical authority, Kima Fertilizers' Industries (at Aswan City), Sugar Industries (at Kom Ombo and Edfu Directorates) in Aswan governorate are responsible for collecting, transporting and dumping wastes from their employees' residential quarters. However, they have no outside contracts for solid waste management.

### ***Type of Services Provided***

*Care Service* has an annual contract for street sweeping and cleaning for a number of main streets in Edfu, Kom Ombo, and Aswan cities.

The NGO that provides door-to-door service for a new residential area (Atlas) in Aswan collects the waste from residential units but only transports it to large street containers for final disposal by the local authority.

### ***Service Coverage Percentage***





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a number have tried to operate before, however, they were unable to continue their services due to problems in collecting fees from the residents.

### ***Type of Services Provided***

: Care Service collects garbage from residences in the Suez Canal Authority and cleans the non-major streets in Port Tawfik; Nibitco is responsible for SWM in both employee housing and industrial facilities of the El-Nasr Petroleum Company.

### ***Service Coverage Percentage***

There is no accurate information currently available on the percentage of service provided by the two private companies operating in the governorate.

#### **4.1.5 South Cairo Zone**

The Cairo Governorate is divided into four main regions, the North, East, West and Middle (Wasat), and South zones. Each of these zones issued separate tender documents and is proceeding with SWM privatization independently. In what follows, we therefore focus only on South Cairo Zone, which has nine administrative districts: Misr Al-Qadima, Al-Sayyeda Zeinab, Al-Khalifa, Torah, Al-Maadi, Al-Tebbin, Helwan, Al-Bassateen and Dar Al-Salam, and 15th of May..

South Cairo Zone twice requested international operators to submit their qualification documents, first to pre-qualify a reasonable number of operators. Pre-qualification was requested separately for solid waste and hospital (medical) waste.

### ***Number of Contracted Operators***

The Cairo Cleaning and Beautification Authority (CCBA) was created to regulate the solid waste management system in the city. It grants licenses for the collection and removal of waste and supervise implementation.

Only registered private companies were allowed to bid for licenses. This prompted individual garbage collectors to form private companies. The companies pay the licensing fees to CCBA and collect service fees from the households. The licensing fee paid to the CCBA secures the exclusive right of the garbage collector to collect the garbage from residential units within a certain area.

Tables 5 and 6 illustrate the number of licensed private operators per district and the number of contracted service companies respectively.

**Table 5: Number of licensed private operators in South Cairo Zone**

District	Number of Licensed Private Operators <sup>16</sup>
Misr Al Qadima	6
Al Khalifa	5
Torah	5
Helwan	6
Tebbin	2
Dar Al Salam and Al Bassateen	10
<b>TOTAL</b>	<b>34</b>

**Table 6: Number of contracted private operators in South Cairo Zone**

District	Keesm	Name of Contracted Private Company <sup>17</sup>	Annual Contract Value (LE)
Al-Sayyeda Zeinab	All	Misr Service	1,260,000
Misr Al-Qadima	Al-Madabegh	Europe 2000	497,000
	Al-Maniel and Al-Roda	Europe 2000	1,698,600
Al-Maadi	All	Europe 2000	960,000

The two tables make it clear that no companies are contracted to provide solid waste services in Al Khalifa, Helwan, Dar Al Salam and Al Bassateen, Tebbin, and Torah districts. On the other hand, contracted companies cover Al-Sayyeda Zeinab and Al-Maadi districts. Misr Al-Qadima district is the only district hosting both private contracted and licensed companies.

### ***Type of Services Provided***

In South Cairo Zone, private sector SWM operators are involved may be either private companies or operating informally. While private companies collect and transport solid waste, the informal sector is providing a wider range of services including collection, transportation, and recovery of primary materials, trading and recycling. This could be attributed to the nature of this informal sector that comprises traditional garbage collectors “Zabbaleen”, scavengers from municipal containers on streets, dumpsite scavengers, etc.

<sup>16</sup> Data collected from CCBA, 2000

<sup>17</sup> Data collected from CCBA, 2000

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### *Service Coverage Percentage*

**Table 7: Number of Households Served and Percentage Coverage in South Cairo Zone**

District	Total number of households served	Total number of households	% Coverage
Misr Al Qadima	45,763	58,742	78
Al Sayyeda Zeinab	27,597	42,819	64
Al Khalifa	17,613	51,497	34
Al Maadi and Torah	28,438	33,894	84
Helwan	72,352	122,733	59
Tebbin	11,373	12,584	90
Dar Al Salam and Al Bassateen	142,476	158,221	90
<b>TOTAL</b>	<b>345,612</b>	<b>480,490</b>	<b>72</b>

#### 4.1.6 Dakhaleya

Dakahleya Governorate is in the process of preparing the tender document for interested and qualified private sector operators.

Dakahleya is located in the Delta area; 72% of the population lives in rural areas. It comprises 14 Markaz and three cities with Mansoura as its capital.

#### *Number of Contracted Operators*

Although private collection companies are, in fact, providing the collection and transportation services of household waste, no private sector companies are granted licenses for the provision of such service. The reason for this is that municipalities preferred not to formalize the situation of private companies.

Some NGOs were reported to be providing solid waste services in Dakahleya. Among these, is the Community Development Association (CDA) that offers door-to-door collection services in Mansoura City for a monthly fee.

#### *Type of Services Provided*

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Municipalities perceive private collection companies positively as they offer some relief from the burden of the responsibilities, problems and costs associated with the collection and transportation of waste. In Dakahleya private companies have always been active in sorting, in contrast to the situation in Cairo where private collection companies are satisfied with the profit gained from collection and transport.

Informal waste recoverers have developed their own comprehensive system for dealing with non-organic solid waste and would prefer to continue their entrepreneurial activities as they have been carried out over many years, such as:

- Scavenging at dumpsites
- Scavenging at street collection/transfer points
- Recovering solid waste from households
- The peddler/barter system
- Middlemen buying reclaimed waste from scavengers

## 4.2 Review of Contract Validity and Future Perspectives

Private operators provide their services either through licenses or service contracts with local authorities. Particularly in Giza and Aswan governorates these agreements are renewable on an annual basis. However, the south Cairo Zone has contracted two private companies (Europe 2000 and Misr Service) to provide the solid waste management services in the zone as result of bidding processes.

Details are presented for the contracts with Europe 2000 for the following reasons:

- They are validity for a longer duration,
- They cover both residential and industrial communities, and
- Their information was accessible.

### *Al-Maadi Contract (Residential Area):*

<i>Date of Signature</i>	1 February 2000
<i>Duration</i>	3 Years (May be extended based on agreement of involved parties and efficiency of mechanical equipment).
<i>Total Contract Remuneration</i>	2,880,000 LE
<i>Terms of Payment</i>	960,000 LE per year
<i>Working Hours</i>	3 shifts a day (24 hours)
<i>Scope of Work</i>	Daily collection of household waste for a monthly fee of 4 LE. Daily collection of waste generated from commercial shops and workshops. Cleansing of street, squares and gardens and dust removal. The company must transport, at no extra charge, the collected waste to the main public dumpsites using their own equipment.

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***Al-Madabegh, Misr Al-Qadima Contract (Industrial Area):***

<i>Date of Signature</i>	1 March 2000
<i>Duration</i>	3 Years (May be extended based on agreement of involved parties and efficiency of mechanical equipment).
<i>Total Contract Remuneration</i>	1,491,000 LE
<i>Terms of Payment</i>	497,000 LE per year
<i>Working Hours</i>	Daily from 7:00 a.m. till 10:00 p.m.
<i>Scope of Work</i>	Collection of waste generated from workshops, industrial establishments, and labor residence units. Cleansing of specified main streets. The company must transport, free of charge, the collected waste to the main public dumpsites using their own equipment.

These two service contracts with different scope of work and targeted beneficiaries: residential and industrial areas, were signed in early 2000 and therefore extend to the beginning of year 2003.

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## **Annex A: Discussion of SWM Indicators**

Looking for a long-term solution to the solid waste problem, the Government of Egypt has prepared a National Solid Waste Management Program incorporating inputs from all the concerned ministries. The strategy emphasizes the necessity of involving the private sector in SWM services, to improve the efficiency and performance of the service provided nationwide.

The Integrated Solid Waste Management (ISWM) services required from the private operators include the performance of the following activities:

- Collection
- Transportation
- Cleansing
- Transfer stations
- Recycling
- Composting
- Incineration (alternatives to incineration are acceptable)
- Landfilling

The scope of work of this ISWM services includes most categories of wastes: municipal; healthcare (hazardous and non-hazardous); and industrial non-hazardous wastes.

In contracting with private operators, governorates would need to retain responsibility to specify the level of service to be provided and to enforce standards. This creates the need for a tool to ensure that the standards are achieved. There is also a need to know if the overall concept and process of privatization is achieving any improvements.

In light of the information gathered, several alternatives were assessed in order to define realistic, practical, and measurable performance indicators. The following section discusses indicators of the process of privatization of SWM services and of the measurement of performance of privatized SWM services.

### **A.1 Number of New Service Contracts, a Process Indicator**

This indicator compares the number of new contracts signed by the local government to the existing ones. For the purpose of this study and based on the draft USAID Performance Monitoring Plan (PMP), the numbers of private solid waste service providers exclude operators working with hazardous waste and health care waste.

Therefore, this indicator could be defined as the total number of new contracts with private companies to collect and dispose of non-hazardous solid waste in each governorate since the baseline year of 1999.

When this indicator is defined:

- The number of new service contracts might be fewer than before. In South Cairo Zone, for instance, two private operators are now servicing residential and industrial areas through service contracts. More than 30 licensed operators are providing such services in other areas of the zone. Once a contract is awarded, only one private contractor might serve the whole zone, which would be a decrease.
- The scope of work of these private contracts (collection and disposal) might exclude incineration, composting, and land-filling that are parts of the ISWM services requested by the governorates.

This performance indicator, which depends on number of service contracts, was not included among those used to assess achievement of the SWM privatization process. This indicator, which depends on the number of service contracts, is not perfect for assessing the achievement of the solid waste management privatization process. The PMP indicator uses the same information but is defined as the number of governorates with new contracts in place. The information here is an additional useful perspective on the PMP indicator.

## **A.2 Percentage Service Coverage, a Process Indicator**

This indicator depends on calculating a percentage for the population served by regular private waste collection. For example, private sector operators for waste collection do not serve the directorate of Daraw in Aswan Governorate, but once the governorate signs a service contract with an international operator, this directorate would presumably be served. Again, the information here is an additional useful perspective on the PMP indicator.

## **A.3 Collection Index, a Physical Performance Indicator**

This represents one of the simplest performance indicators, since it entails calculating a ratio for the amount of waste collected by the private sector compared with the total amount of waste generated. Knowing the total population and the per capita generation rate for urban and rural areas, the amount of generated waste could be easily calculated. Presumably, once the private sector is involved in solid waste collection, the amount of waste collected could be reported more accurately. Once calculated, the collection index can be compared to previous ratios for the governorate and district levels.

## **A.4 Annual Expenditure per Ton of Waste Collected, a Financial Efficiency Performance Indicator**

The costs of solid waste management can be allocated to capital and operating costs: capital costs consist of investments in vehicles, containers, etc.; operating costs are the variable costs of labor and maintenance, etc. A more comprehensive performance indicator related to financial expenditure would be the **Annual expenditure per ton of waste collected**.

This indicator of performance correlates the annual expenditure in the private sector on solid waste management to the amount of waste collected per year. With private



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sector SWM, the amount of waste collected could presumably be accurately reported. Depending on the contract with the governorate, the annual revenue for the private sector could be easily identified. Thus, this indicator could be easily calculated and compared annually. It should give some measure of the “efficiency” and hence, of performance.

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## Annex B: Sources of Information for Overall Survey

The contact person(s) in the different governorates who released the information presented in Chapter 3 are listed below.

	Governorate	Person(s) having released the information
1.	Alexandria	n/a <sup>18</sup>
2.	Assiut	Mr. Yehya Mohamed Abdel Latif Secretary General of the Governorate
3.	Aswan	Dr. Hussein El Tahawy Head of the Environmental Management Unit of the Governorate
4.	Beheira	Mr. Ibrahim El-Shirbini Ahmed Assistant Secretary General of the Governorate
5.	Beni Suef	Eng. Mohamed Soliman Abdel Hafeez Head of the Environmental Management Unit of the Governorate
6.	Cairo	Gen. Magdi El Bassiouni Chairman of the Board of Directors General Authority for Cleansing and Beautification
7.	Dakhaleya	Eng. Atef El Manabawy Head of the Environmental Management Unit of the Governorate
8.	Damietta	Eng. Mohamed Ragab Secretary General of the Governorate
9.	Fayoum	Mr. Ani El Kaseify Secretary General of the Governorate
10.	Gharbeya	Eng. Ahmed El Kholy Secretary General of the Governorate
11.	Giza	General Authority for Cleansing and Beautification. Further Information not available
12.	Ismailia	Office of the Secretary General of the Governorate. Further Information not available
13.	Kafr El Sheikh	Eng. Fatma Rihan Head of the Environmental Management Unit of the Governorate
14.	Luxor City	Eng. Layal Arafa Hamed Head of the Environmental Management Unit of the City of Luxor
15.	Matrouh	Mr. Ahmed Hamed El Sersy Secretary General of the Governorate

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<sup>18</sup> For the case of Alexandria, the information was obtained from the detailed description.

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16.	Menoufeya	Gen. Hossam Bedeiwy Secretary General of the Governorate
17.	Miniah	Eng. Samir Abul Leil Secretary General of the Governorate
18.	New Valley (El Wadi El Guedid)	Mr. Mohamed Raffat Abdel Mo'men Assistant Secretary General of the Governorate
19.	North Sinai	Mr. Abdallah Hegawi Head of the Environmental Management Unit of the Governorate
20.	Qena	Office of the Secretary General of the Governorate. Further Information not available
21.	Qualyubeya	Mr. Gamal Mohamed Sheiha Secretary General of the Governorate
22.	Port Said	Dr. Adel Metwali Assistant Secretary General of the Governorate
23.	Red Sea	Mr. Mahmoud Othman El Gendi Secretary General of the Governorate
24.	Sharkeya	Chem. Adel El Kamhawy Head of the Environmental Management Unit of the Governorate
25.	Sohag	Information not available
26.	South Sinai	Mr. Mohamed Wagih Abdel Ghani Secretary General of the Governorate
27.	Suez	Eng. Samir Adbel Sadek Head of the Environmental Management Unit of the Governorate

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## **Annex C: List of Interviewees for Detailed Descriptions**

Mohamed Nabil El-Nabawy	<i>South Cairo Zone</i> Cleaning and Beautification Authority General Manager, Central Department
Mahmoud El-Shafaei	<i>South Cairo Zone</i> Cleaning and Beautification Authority Department Manager, Central Department
Hoda Sallam	<i>South Cairo Zone</i> Cleaning and Beautification Authority Engineer, Technical department
Magdi Fatouh	<i>Giza City</i> Cleaning and Beautification Authority Central Department
Awad Aboud	<i>Giza City</i> Cleaning and Beautification Authority Central Department
Samy Mohamed Saad	<i>Giza City</i> Cleaning and Beautification Authority Central Department
Dr. Hussein Tahtawi	<i>Aswan Governorate</i> Environmental Affairs Director
Dr. Harwig Behnfeld	<i>Aswan Governorate</i> Director, GTZ - Aswan
Maghrabi Ali Youssef	<i>Suez Governorate</i> Director Cleanliness and Beautification Agency
Samir Abdel Sadek	<i>Suez Governorate</i> Head Environmental Department
Amin El-Khayyal	Egyptian Environmental Affairs Agency Solid waste management director

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## **Annex D: List of Documents Consulted**

1. National Solid Waste Management Program, proposal for discussion, December 2000
2. Ministerial Committee for solid waste management, EEAA, November 1999
3. The informal solid waste sector in Egypt, Community & Institutional Development, January 2001
4. Municipal solid waste management strategy for METAP Mashreq and Maghreb countries, METAP, April 2000
5. Governorate of Alexandria - Municipal solid waste management implementation plan, USAID, June 1999
6. Governorate of Dakahleya - Solid waste management strategy, SEAM project, March 1999
7. Solid waste management, Energy Conservation and Environmental Protection, USAID, 1996
8. Tender document for Alexandria Governorate
9. Tender document for Aswan Governorate
10. Tender document for Suez Governorate
11. Tender document for Giza City
12. Pre-qualification document for Southern Cairo Zone

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## **Annex E: Governorate Information Collection Form in English**

(English Translation of the actual Arabic form used)

**SWM Contractors Governorate:** \_\_\_\_\_

<b>Subject of contract</b>	<b>Contractor by group</b>	<b>YEAR 1999</b>		
		<b>Number of Contractors</b>	<b>Number of Contracts</b>	<b>Name of Contractor</b>
<b>Collection</b>	Individual contractor (Zabaleen)			
	Private Company			
<b>Recycling</b>	Individual Contractor (Zabaleen)			
	Private Company			
<b>Composting</b>	Individual contractor (Zabaleen)			
	Private Company			
<b>Land Filling for Final Disposal</b>	Individual contractor (Zabaleen)			
	Private Company			